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JUNE 1986

PRODUCTION

FOR MANAGERS OF MANUFACTURING TECHNOLOGY



Advanced Materials & Machining Guide

*What You Need to Know
Before You Buy*

Workholding
& Technology

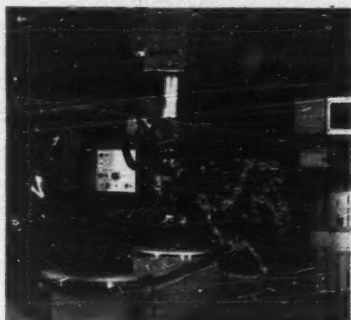
Need High-Speed Machining Automation?
Here's a Plan That Makes Sense

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COVER-TO-COVER

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ADVANCED MATERIALS & MACHINING GUIDE

44 Parts making has changed. The materials and equipment by which parts are made and formed has evolved to a higher level, and at a far greater pace than manufacturers thought possible. *PRODUCTION* presents a two-part guide that highlights significant technologies that will have a dramatic impact on your future.

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*Cover photograph showing
the abrasive waterjet cutting
process was provided courtesy
of Flow Systems Inc.

UPDATE

Statistical Highlights⁽¹⁾ U.S. Iron and Steel Industry

		1980	1981	1982	1983	1984
Production (millions of net tons)	Total U.S. Pig Iron	68.7	73.6	43.3	48.7	51.9
	Total U.S. Raw Steel	111.8	120.8	74.8	84.6	92.5
	Open Hearth	13.0	13.5	6.1	6.0	8.3
	Electric	31.2	34.1	23.2	26.6	31.4
	Total Canadian Raw Steel	17.5	16.1	13.0	14.0	16.1
	Total World Raw Steel	790.4	779.4	710.7	730.9	782.2
Shipments (millions of net tons)	Total Steel Mill Products	83.9	88.5	61.6	67.6	73.7
	Carbon	73.4	76.6	53.9	60.3	65.0
	Alloy	9.4	10.7	6.7	6.2	7.5
	Stainless	1.1	1.2	0.9	1.1	1.2
Shipments, Major Products, All Grades (millions of net tons)	Shapes, Plates and Piling	13.3	12.7	7.7	7.4	8.5
	Bars and Tool Steel	13.3	14.7	10.8	11.7	13.2
	Pipe and Tubing	9.1	10.3	5.0	3.2	4.3
	Wire and Wire Products	1.8	1.8	1.3	1.4	1.2
	Tin Mill Products	5.7	4.9	4.3	4.3	4.1
	Sheets and Strip	33.6	36.9	27.9	34.8	36.8
Foreign Trade (millions of net tons)	Imports, All Steel Mill Products	15.5	19.9	16.7	17.1	26.2
	Carbon	14.8	18.6	15.4	16.3	24.9
	Alloy	359	1.1	1.1	537	987
	Stainless	153	191	203	190	263

(1) With the exception of imports, statistics are compiled from data submitted by reporting companies. However the number of companies participating in the submission of individual statistics varies. For example, raw steel production data are based on reports to ANSI from those companies that produce 100 percent of the industry total while the comparable average in the financial statistics is about 60 percent.
Source: American Iron and Steel Institute

Specialty Steel Association Raps Import Surge

"So much for the good will of our trading partners," exclaimed the head of the nation's largest producer of specialty steel as he protested the surge of specialty steel imports prior to the start of March 1 restraints.

Richard P. Simmons, chairman of Allegheny Ludlum Steel Corp., Pittsburgh and also chairman of the industry's trade association, charged that the European Community (E.C.) was "cramming every possible ton of stainless steel into the U.S. before the import-restraint arrangement began March 1." Simmons' protest came as figures for January and February specialty steel imports were made available.

Trade quotas were to take effect January 1, but Simmons, also head of Specialty Steel Industry of the United States, said an agreement was delayed until March 1 "because of intransigence by the E.C."

February imports of stainless sheet and strip from the E.C. leaped 241 pct to 13,025 tons, up from 3,820 tons in 1985. For the first two months of this year, imports for the same products were up 198 pct to 26,761 tons, compared with 8,988 tons in the prior year period.

Stainless sheet and strip shipments from all nations for the first two months

were up 139 pct, 39,391 tons vs. 16,454 tons in the like period last year. Total foreign stainless plate shipments to the U.S. were 4,739 tons, up 309 pct; E.C. stainless plate shipments to the U.S. were 4,126 tons, up 489 pct from last year's January-February period.

"The results of these soaring imports in the early months is that E.C. penetration will not be anywhere near the negotiated 3.99 pct on stainless sheet and strip, but more like 16 pct, all because of the delay in implementation," Mr. Simmons stated.

In nearly all the import-restraint agreements negotiated by the U.S. with foreign nations, including the nine-nation E.C., flatrolled stainless products are covered. Flatrolled stainless represents 75 pct of the U.S. specialty industry's production.

In most agreements, however, flatrolled stainless is only a small part of the larger carbon and alloy steel categories. This gives foreign producers an incentive to ship higher-value products rather than the lower-value carbon steel products to fill quotas. This is called "upgrading."

"Upgrading is exactly what has been happening and what is likely to continue without great vigilance and stiffening of resistance in the (U.S.) Administration," said Mr. Simmons.

U.S. Steel Chairman Backs Restraints

As America's specialty steel industry attacked the two-month delay in instituting specialty steel import restraints, the chairman of the nation's largest steel producer praised President Reagan's steel import restraint program.

David M. Roderick, U.S. Steel Corp. chairman, told a hearing of the U.S. House Subcommittee on Commerce, Consumer and Monetary Affairs in Pittsburgh that if the controls "were not in place, many steel companies now described as being under a cloud would instead have been under a statute called Chapter 11."

However, Mr. Roderick stated that the U.S. program, intended to limit importation of foreign steel to one-fifth of the U.S. market, won't prevent shrinkage in an already diminished steel industry.

Mr. Roderick said U.S. Steel is considering buying semifinished steel from domestic competitors to supply the company's finishing mill, the Fairless Works, near Philadelphia.

Lynn Williams, president of the United Steelworkers of America, however, expressed frustration over the loss during the past 10 years of 170,000 steelworkers' jobs. Citing a Congressional research study, Williams showed that trade quotas had saved the jobs of 7,800 workers who produce 3 million tons of steel a year. But the program also allowed nearly an equal amount of steel into the U.S. and eliminated about as many jobs as were saved.

"You can understand, Mr. Chairman, why the United Steelworkers feels that the President's program is not working," Mr. Williams told the subcommittee. "Why were we allowed to be hit so badly by unfair imports in the first place? No amount of relief will compensate for the injury received."

Specialty steel accounts for only about 10 pct of the steel industry's total dollar volume.



James A. Gray

workers without giving them the tools to amplify their output. We failed to make the investment that makes them worth their wages, and the result has been low productivity growth and a loss of industrial competitiveness," he said.

Mr. Gray said that although there are many reasons why capital costs more in the U.S., the President's Commission on Industrial Competitiveness "believes that taxes are a major factor...and that the federal deficits are sucking up private sector savings, depriving industry of capital and driving up its costs."

"Business bashing has become a popular Washington sport," added Mr. Gray. "Washington's fiscal actions are built on a foundation of fairy tales that have pushed reality out of the political arena. Even worse, it's the fairy tales that keep many Americans from understanding the folly of current Congressional thinking."

"The new policies we select must be designed to make our market forces work better—not to impede them," Mr. Gray continued. "Congress cannot legislate success; only the cost and the quality of a product can do that. But Congress can select policies that affect the environment in which industry operates—policies that create a climate where investment, creativity and entrepreneurship will flourish. Congress must select policies that keep America continually engaged in the process of creating real wealth so that our citizens can prosper," he said.

Machine Tool Orders Rise Slightly

March orders for new machine tools rose a slight 2.1 pct over February to \$214 million. However, compared to March of last year, orders were off 23.1 pct., according to statistics released by the National Machine Tool Builders' Association (NMTBA).

At \$615 million, year-to-date new order figures were down 15.4 pct compared to the first quarter of 1985.

"The continuing sluggishness in the new order picture is a serious concern to us," said James A. Gray, president of the NMTBA. "America's manufacturing industries have taken their lumps over the past 10 years because of the high value of the dollar, and the machine tool industry has suffered along with them," he added.

Mr. Gray said that he had hoped to see a rekindling of investment by domestic industry but stressed that the specter of 'tax reform' looms large over manufacturing. "Every day we hear that money is available for capital improvement, but that purchase plans can't be finalized until the tax and economic situation becomes clearer. This Washington wait-and-see attitude is

costing our industry dearly," he said.

With net new orders of \$55 million, metal forming new orders were up 31.7 pct over February, representing a 5.3 pct increase over March 1985. Shipments of metal forming equipment also showed a 13 pct increase over March of last year. Year-to-date shipments stood at \$210 million or about 20 pct above the figure for the same period in 1985.

Metal cutting machine tool orders totaled \$159 million for March, a 5.3 pct drop from February's level, and a 29.6 pct drop from March, 1985. Year-to-date figures were off 12.3 pct. Metal cutting shipments rose to \$171 million in March, an increase of 38 pct for the month. Year-to-date metal cutting shipments were up 8.4 pct.

With shipments exceeding orders, the preliminary combined metal cutting and metal forming backlog figure of \$1.6 million for March represents a drop from the February figure of \$1.7 million. At \$1.3 million the metal cutting backlog is down from 1.3 million. The metal forming backlog stands at \$356 million, down from \$378 million a month ago.

MACHINE TOOL ORDERS

Backlog

Order Backlog
(In Mil. \$)

